

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1. (Currently amended) An extruder having a plurality of axially parallel, codirectionally rotating shafts disposed in a process chamber between a housing and a core along a circle at equal central-angle distance and equipped with processing elements with which adjacent shafts mesh with each other, whereby axially parallel, circular segment shaped longitudinal depressions are provided for receiving the shafts on the inner side of the housing and the outer side of the core, the housing is composed of housing segments, at least one of which is provided with a heating means, the housing segment at the upstream conveying end has a material feed opening and the discharge is provided at the downstream conveying end, characterized in that the core ~~(+4)~~ has outwardly leading cooling channels for a cooling liquid to flow through, said at least one housing segment ~~(16 to 19)~~ provided with ~~at~~ the heating means ~~(+27)~~ has a cooling circuit with axially parallel, circumferentially distributed, interconnected cooling bores ~~(+28)~~ for a cooling liquid to flow through on the portion of the housing segment ~~(16 to 19)~~ facing the process chamber ~~(2)~~, and the at least one housing segment ~~(16 to 19)~~ has associated therewith a temperature control device for controlling the heating means ~~(+27)~~ and the flow of cooling liquid through the cooling bores ~~(+28)~~.

2. (Currently amended) The extruder according to claim 1, characterized in that the cooling channels in the core ~~(+4)~~ are formed by an axial bore ~~(+29)~~ and an outside channel ~~(+31)~~ disposed spirally around the axial bore ~~(+29)~~, and the coolant

is supplied at the downstream conveying end and flows toward the upstream conveying end.

3. (Currently amended) The extruder according to claim 1, characterized in that the process chamber ~~(2)~~—is sealed by end plates ~~(5, 6)~~—at the upstream and downstream conveying ends.

4. (Currently amended) The extruder according to claim 3, characterized in that the core ~~(4)~~—penetrates the upstream conveying end plate ~~(5)~~, and ~~thea~~ cooling liquid feed ~~(32)~~—and ~~thea~~ cooling liquid drain ~~(33)~~—are provided at the end of the core ~~(5)~~—protruding from the upstream conveying end plate—~~(5)~~.

5. (Currently amended) The extruder according to claim 4, characterized in that the cooling liquid feed ~~(32)~~—and the cooling liquid drain ~~(33)~~—are formed by radial bores in a segment ~~(34)~~—which is disposed on the end of the core ~~(4)~~ protruding from the upstream conveying end plate—~~(5)~~.

6. (Currently amended) The extruder according to claim 2, characterized in that the outside channel ~~(31)~~—is formed by a spiral groove on the outside circumference of thea distributor ~~(99)~~—and sealed by a mandrel—~~(9)~~.

7. (Currently amended) The extruder according to claim 1, characterized in that sleeve-shaped segments ~~(11)~~—are disposed in thean end plate ~~(5)~~—so as to form the axially parallel, circular segment shaped longitudinal depressions—~~(13)~~.

8. (Currently amended) The extruder according to claim 1, characterized in that at least one said housing segment ~~(16, 21, 22)~~ has at least one horizontally and/or vertically extending, radial opening ~~(38 to 42)~~—for connecting the process chamber ~~(2)~~—to the outer surroundings.

9. (Currently amended) The extruder according to claim 8, characterized in that the opening ~~(38 to 42)~~ is provided with fixed or moving fittings ~~(46)~~ for supplying or removing substances.

10. (Currently amended) The extruder according to claim 1, characterized in that at least some of the housing segments ~~(16 to 19, 21, 22)~~ are held together tightly by tie-rods ~~(48)~~ with prestressing.

11. (Currently amended) The extruder according to claim 10, characterized in that at least three, ~~preferably four,~~ said tie-rods ~~(48)~~ are provided.

12. (Currently amended) The extruder according to claim 10, characterized in that the radial positioning of the housing segments ~~(16 to 19, 21, 22)~~ is effected by the tie-rods ~~(48)~~.

13. (Currently amended) The extruder according to claim 10, characterized in that sleeve-shaped filler pieces ~~(63)~~ are provided on the tie-rods ~~(48)~~.

14. (Currently amended) The extruder according to claim 10, characterized in that the tie-rods ~~(48)~~ attach at one end to the downstream conveying housing segment ~~(16)~~ and at the other end to a plate ~~(23)~~ provided on the downstream conveying side of the segment ~~(25)~~ with the material feed opening ~~(26)~~.

15. (Currently amended) The extruder according to claim 1, characterized in that the segment ~~(25)~~ with the material feed opening ~~(26)~~ is followed on the downstream conveying side by a segment ~~(24)~~ with a funnel-shaped inside wall tapering in the downstream conveying direction.

16. (Currently amended) The extruder according to claim 1, characterized in that the housing ~~(1)~~—and the core ~~(4)~~—are formed so as to be mutually movable axially on one side.

17. (Currently amended) The extruder according to claim 1, characterized in that the discharge is formed by a discharge segment—~~(85)~~, whereby pairs of the adjacent shafts ~~(3)~~—extend as double shafts ~~(86)~~—into the discharge segment ~~(85)~~, and the two shafts ~~(3)~~—adjacent the double shafts—~~(86)~~ only extend up to the discharge segment—~~(85)~~.

18. (Currently amended) The extruder according to claim 1, characterized in that the discharge is formed by a discharge segment—~~(85)~~, whereby every second said shaft—~~(3)~~ extends into the discharge segment—~~(85)~~, and the other shafts ~~(3)~~—end at the discharge segment—~~(85)~~.

19. (Currently amended) The extruder according to claim 17, characterized in that the discharge segment ~~(85)~~—is provided on the outside circumference with a heating means ~~(27)~~—and/or cooling bores ~~(28)~~—which correspond to the cooling bores ~~(28)~~—of the housing segments ~~(16 to 19)~~.

20. (Currently amended) The extruder according to claim 17, characterized in that the discharge segment ~~(85)~~—is fastened to the core—~~(4)~~.

21. (Currently amended) The extruder according to claim 1, characterized in that the at least one housing segment ~~(16 to 19)~~—is formed on the inner side by a material produced by powder metallurgy and/or has a separate inside body.